

TC-FX211

SERVICE MANUAL

*US Model
AEP Model
UK Model
E Model
Australian Model*

TC-FX211 mechanical and electrical specifications are almost same as TC-FX170.

This manual contains only the points which differ from TC-FX170.

Please refer to TC-FX170 service manuals (9-956-365-□□) for the information not contained in this manual.

For the Australian model, please refer to the TC-FX170 UK model.

• DIFFERENT PARTS LIST (MECHANICAL PARTS AND OTHERS)

Ref.No.	DESCRIPTION	MODEL	TC-FX170	TC-FX211	Page of TC-FX170 Service Manual
1	SPRING		3-350-426-01	Not used	17, 18
2	KNOB (REC)		3-367-438-12	3-389-516-01	
4	LID ASSY, CASSETTE		X-3362-657-1	A-2004-220-A	
5	PANEL ASSY, FRONT (US) PANEL ASSY, FRONT (EXCEPT US)		X-3362-658-1 A-2003-854-A	A-2004-221-A A-2004-222-A	
7	SCREW, +B(2.6X8) TAPPING		4-928-635-01	4-951-620-01	
8	HEAT SINK		* 3-309-144-21	Not supplied	
14	CORD, POWER (US) CORD, POWER (UK) CORD, POWER (AEP) CORD, POWER (AUS)		△ 1-551-628-12 △ 1-551-884-32 △ 1-551-908-11 —	△ 1-558-945-11 △ 1-696-572-11 △ 1-555-750-00 △ 1-696-966-11	17, 18, 25
15	BUSHING (S) (4516), CORD (AEP, UK, AUS)		* 3-703-244-02	* 3-703-244-00	17, 18
18	PANEL, BACK (UK) PANEL, BACK (E) PANEL, BACK (AEP) PANEL, BACK (US) PANEL, BACK (AUS)		* 3-367-318-32 * 3-367-318-42 * 3-367-318-22 * 3-367-318-01 —	* 3-385-652-32 * 3-385-652-43 * 3-385-652-23 * 3-385-652-03 * 3-385-652-51	
19	SCREW, +BV(2.6X10) TAPPING		4-928-635-21	4-951-620-11	
21	FOOT ASSY (US)		X-4885-950-1	Not used	
23	SPRING		3-356-957-01	Not used	
T401	TRANSFORMER, POWER (AUS)		—	△ 1-450-442-21	17, 18, 25
	ACCESSORY & PACKING MATERIAL ***** INDIVIDUAL CARTON(US, E, AUS) INDIVIDUAL CARTON(AEP, UK) INSTRUCTION(US) MANUAL, INSTRUCTION(ENGLISH, F, E, RC) (AEP, E) MANUAL, INSTRUCTION(ENGLISH) (US, UK, AUS) MANUAL, INSTRUCTION(D, NL, S, I) (AEP)		* 3-364-604-11 * 3-364-604-11 3-703-450-01 3-752-875-11 3-752-875-21 3-752-875-41	* 3-364-604-61 * 3-364-604-71 Not used 3-756-338-11 3-756-338-21 3-756-338-41	25

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- AUS : Australian
- F : FRENCH
- E : SPANISH
- RC : CHINESE
- D : GERMAN
- NL : DUTCH
- S : SWEDISH
- I : ITALIAN

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

STEREO CASSETTE DECK
SONY®



9-957-736-11

Sony Corporation
Audio Group

English
93C0567-1
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© 1993. 3

Published by Audio Corporate Planning Group

TC-FX211

SONY[®] SERVICE MANUAL

*US Model
AEP Model
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E Model
Australian Model*

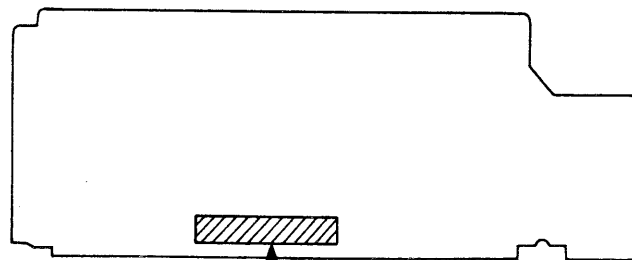
SUPPLEMENT-1

File this Supplement with the Service Manual.


Subject : Circuit change

New type identification :

[AUDIO BOARD] — Conductor side —



1-647-787-12

 : indicates changed portion

CHANGE PARTS LIST (TC-FX170 Service manual page 22, 23, 25)

Page	Ref. No.	Former	New
22	C121	_____	1-136-439-11 FILM 330PF 5% 630V
	C221	_____	1-136-439-11 FILM 330PF 5% 630V
23	CT301	1-141-225-00 CAP, TUNING, TRIMAR	_____
25	RV103	_____	1-241-767-21 RES, ADJ, CERMET 100K
	RV203	_____	1-241-767-21 RES, ADJ, CERMET 100K

ELECTRICAL ADJUSTMENTS (TC-FX170 Service manual page 5, 6)

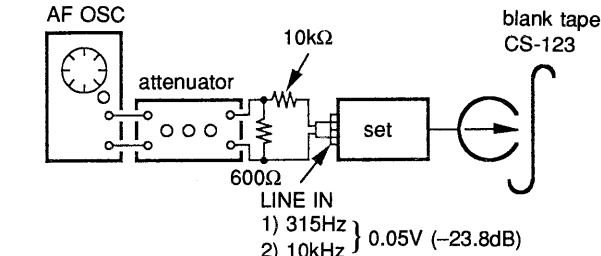
Record Bias Adjustment

Setting :
REC LEVEL control : standard record

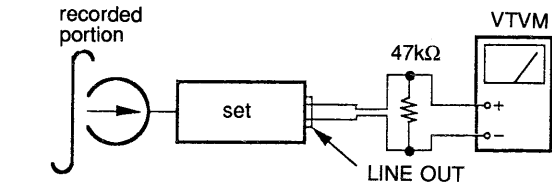
Adjustment Location : Audio Board

Procedure :

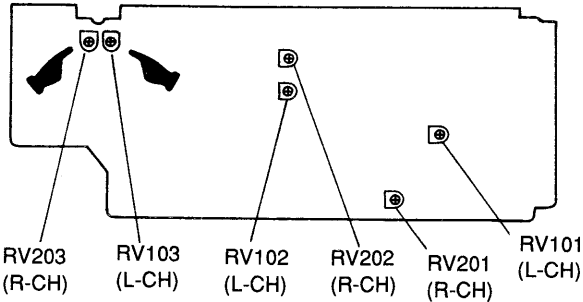
1. Mode : record



2. Mode : playback



— Conductor side —



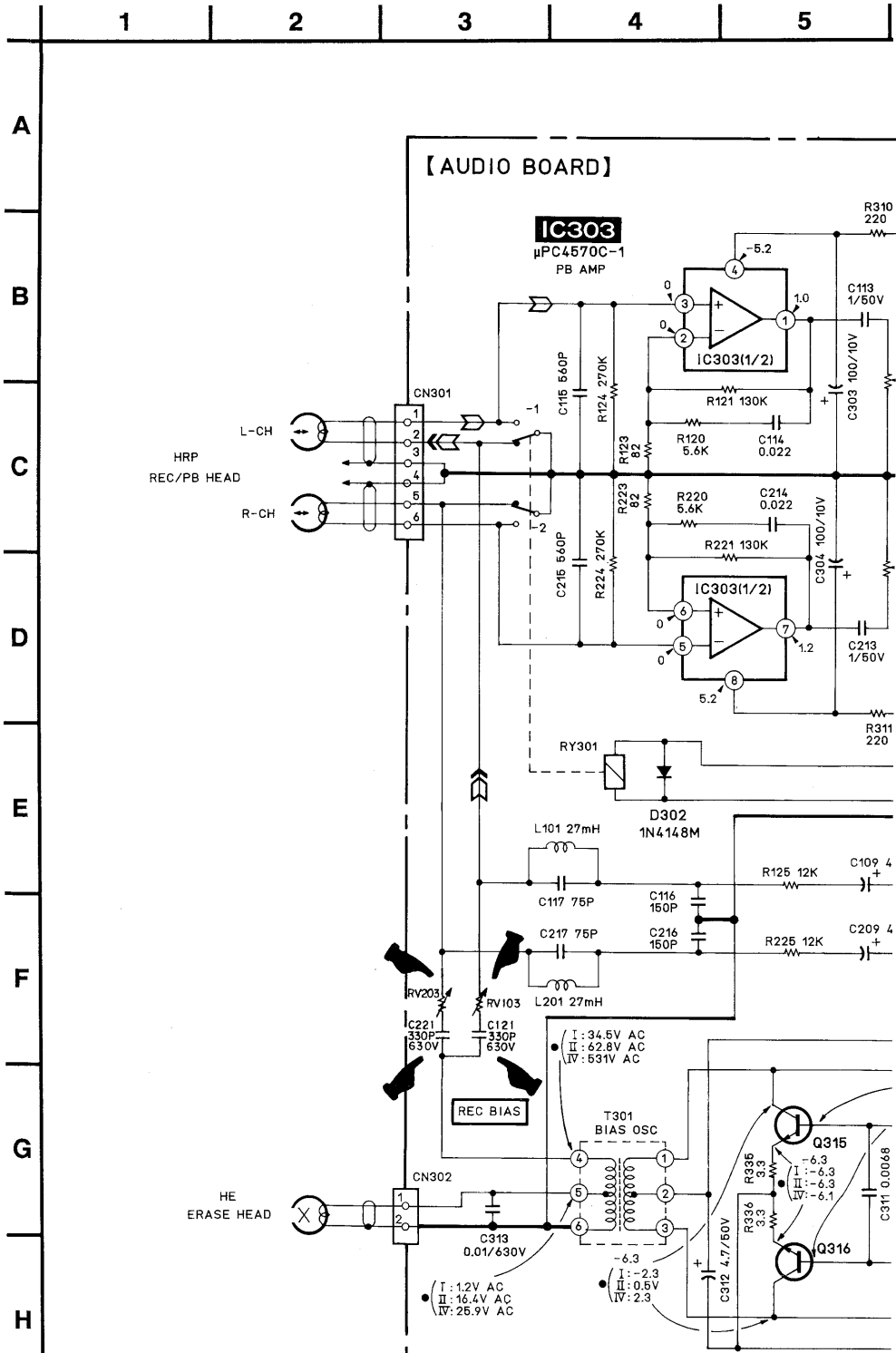
Confirm that the 10 kHz playback output is 0 ± 0.5 dB, relative to the 315 Hz output. If necessary, adjust RV103 (L-CH), RV203 (R-CH) and repeat the steps given above.

DIAGRAMS

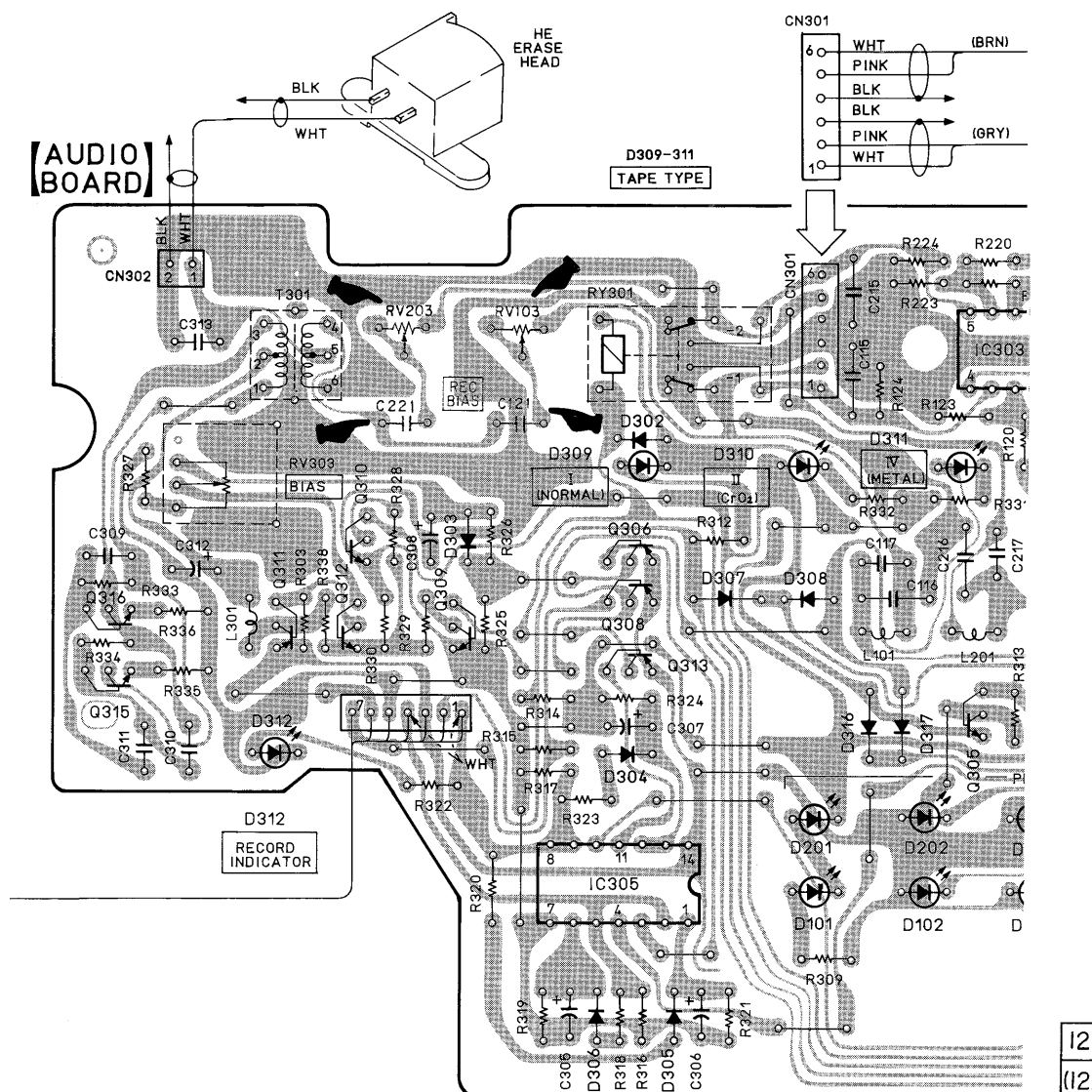
SCHEMATIC DIAGRAM (TC-FX170 Service manual page 13)

👉: indicates changed portion

[AUDIO BOARD]



: indicates changed portion
[AUDIO BOARD] ADDRESS B-6



TC-FX170

SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model
E Model*



SPECIFICATIONS

Recording system

4-track 2-channel stereo

Fast winding Approx. 120 sec. (with C-60 cassette)

Bias AC Bias

Signal-to-noise ratio (at peak level)

Cassette	Dolby NR switch		
	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-SLT/S)	58 dB	66 dB	73 dB
TYPE II (Sony UX-S)	57 dB	65 dB	72 dB
TYPE I (Sony HF-S)	55 dB	63 dB	70 dB

Total harmonic distortion

1.0% (with Sony METAL-SLT/S cassettes)

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-SLT/S)	30 – 15,000 Hz (± 3 dB, IEC) 30 – 13,000 Hz [± 3 dB 0VU (– 4 dB) recording]
TYPE II cassette (Sony UX-S)	30 – 14,000 Hz (± 3 dB, IEC)
TYPE I cassette (Sony HF-S)	30 – 13,000 Hz (± 3 dB, IEC)

Wow and flutter $\pm 0.16\%$ W. Peak (IEC)
 0.11% WRMS (NAB)
 $\pm 0.2\%$ W Peak (DIN)

Model Name Using Similar Mechanism	TC-FX120
Tape Transport Mechanism Type	TCM-180VBN3

Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV
	Input impedance	47k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0.32 V at a load impedance of 47k ohms
	Load impedance	Over 10k ohms
Headphone output (stereo phone jack)	Output level	0.2 mW at a load impedance of 32 ohms


General

Power requirements

US, Canadian Model:
120 V AC, 60 Hz
AEP Model:
220 V AC, 50/60 Hz
UK Model:
240 V AC, 50 Hz
E Model:
110 – 220 V AC, 220 – 240 V
AC, 50/60 Hz

STEREO CASSETTE DECK
SONY®



Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Power consumption 14 W
 Dimensions Approx. 430 × 123 × 286 mm (w/h/d)
 (17 × 4⁷/₈ × 11³/₈ inches)
 including projecting parts and controls
 Weight Approx. 3.5 kg (7 lbs 12 oz)

Supplied accessory

Audio connecting cords (2)

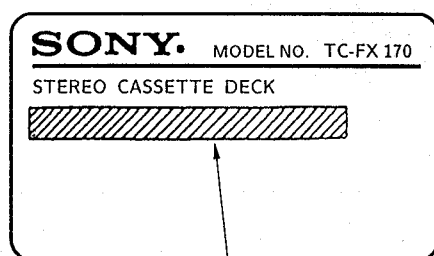
Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

MODEL IDENTIFICATION

- Specification Label Printed on Back Panel -



US/Canadian Model: AC 120 V 60 Hz 14 W

AEP Model: AC 220 - 280 V ~ 50/60 Hz

UK Model: AC 240 V ~ 50/60 Hz

E Model: AC 110 - 120 V, 220 - 240 V
 ~ 50/60 Hz 15 W

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	Identification of Front Panel Parts	3
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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

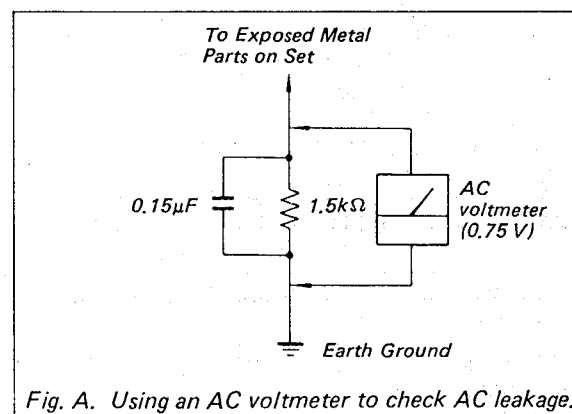


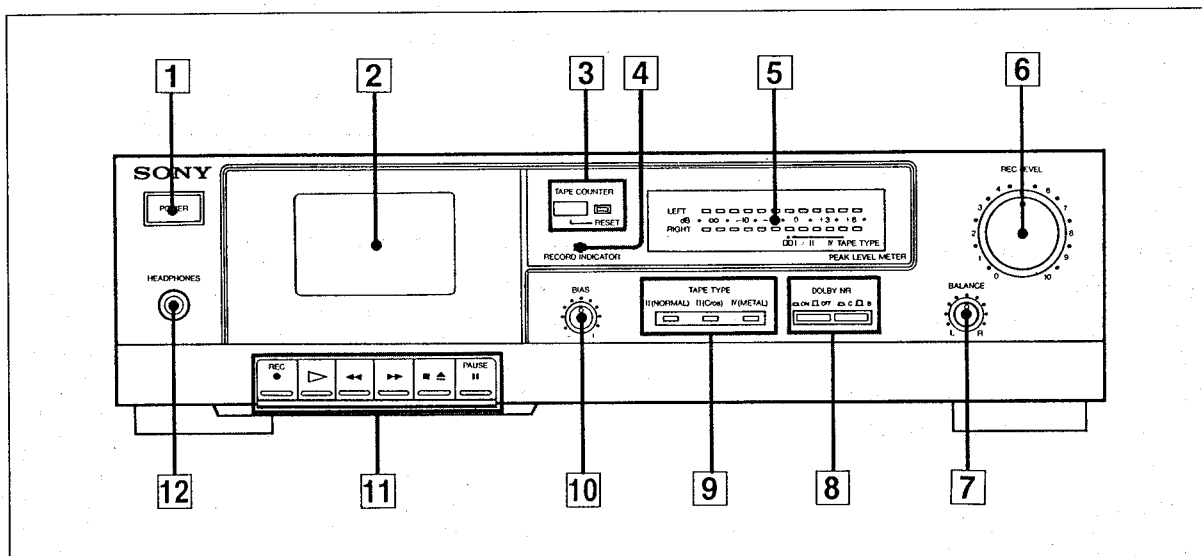
Fig. A. Using an AC voltmeter to check AC leakage.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

Identification of Front Panel Parts



1 POWER switch

2 Cassette holder

3 TAPE COUNTER and RESET button

4 RECORD INDICATOR

5 PEAK LEVEL METER

6 REC (recording) LEVEL control

7 BALANCE control

8 DOLBY NR (Dolby Noise Reduction) buttons

9 TAPE TYPE indicators

10 BIAS control

11 Tape operation buttons

● REC (record) button

▶ (play) button

◀◀ (rewind) button

▶▶ (fast-forward) button

■▲ (stop) and (eject) buttons

|| PAUSE button

12 HEADPHONES jack (stereo phone jack)

SECTION 2 ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

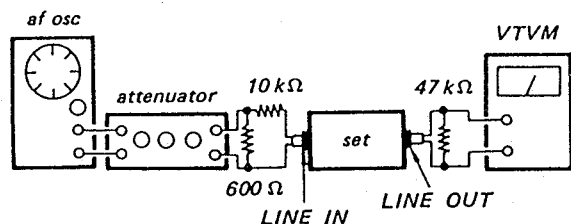
Torque	Torque	Meter reading
FWD	CQ-102C	30 to 70 g·cm (0.43 to 0.97 oz·inch)
FWD Back tension	CQ-102C	1.5 to 6 g·cm (0.02 to 0.07 oz·inch)
FF, REW	CQ-201B	63 g·cm or more (0.87 oz·inch or more)

2-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.
DOLBY NR switch: OFF
- Standard Record:
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

— Record Mode —



Standard Input Level

	LINE IN
source impedance	10 kΩ
input level	0.5 V (− 3.8 dBs)

Standard Output Level

	LINE OUT
load impedance	47 kΩ
output level	0.5 V (− 3.8 dBs)

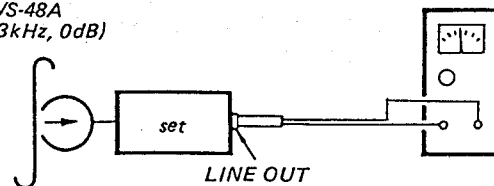
Capstan Motor Speed Adjustment

Procedure:

Mode: playback

test tape
WS-48A
(3kHz, 0dB)

speed checker
LFM-30
or
digital frequency
counter

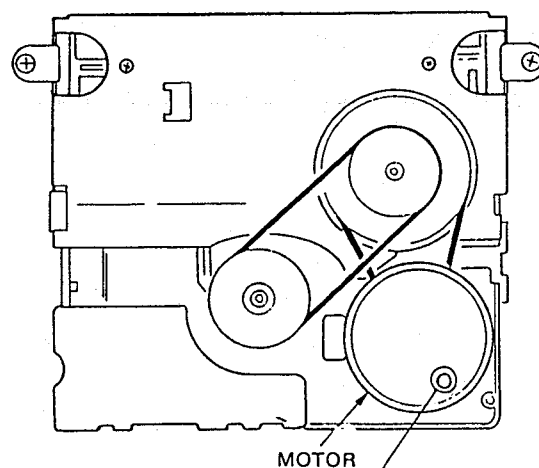


Specification:

Speed checker	Digital frequency counter
−0.3 ~ +0.3%	2,990 ~ 3,010 Hz

Frequency difference between the beginning and the end of the tape should be within 0.3% (10 Hz).

Adjustment Location



Adjust the speed by using screwdriver. When turning the screw clockwise, speed is faster.

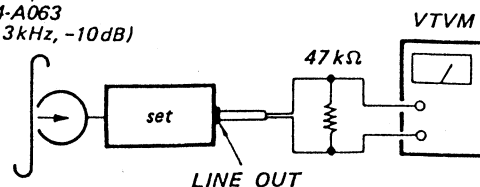
SECTION 3 DIAGRAMS

3-1. BLOCK DIAGRAM

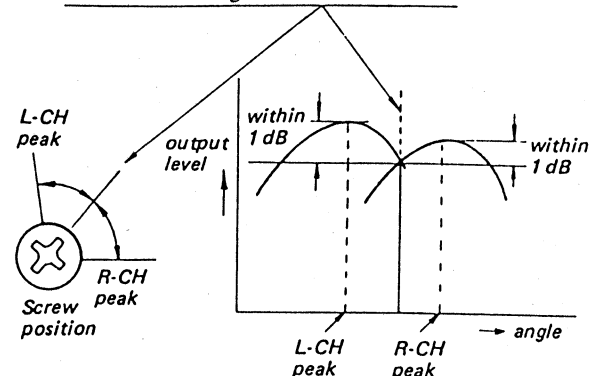
Record/Playback Head Azimuth Adjustment

Procedure:

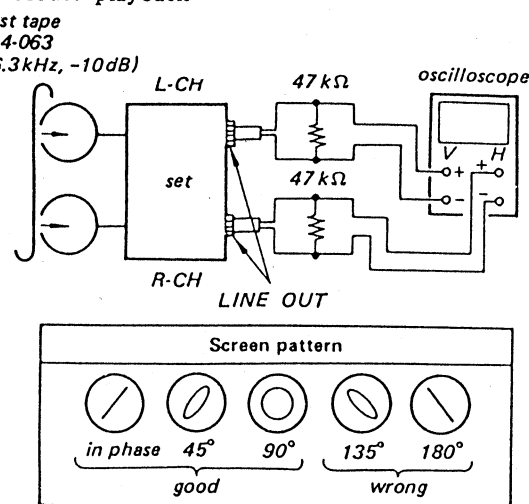
1. Mode: playback
test tape
P-4-A063
(6.3 kHz, -10 dB)



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.

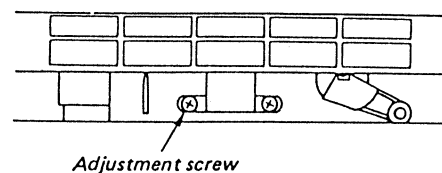


3. Phase Check
Mode: playback
test tape
P-4-063
(6.3 kHz, -10 dB)



Adjustment Location:

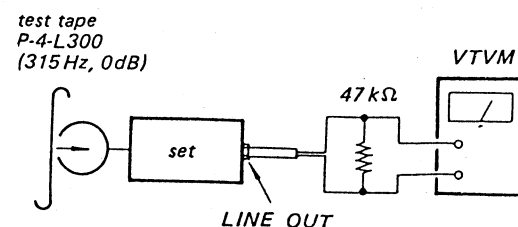
— Record/Playback head —



Playback Level Adjustment

Procedure:

1. Mode: playback



Adjust RV102 (L-CH) and RV202 (R-CH) so that the specification is met.

Specification:

Line OUT level: $-7.7 \text{ dB} \pm 0.5 \text{ dB}$

Level difference between channels:
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

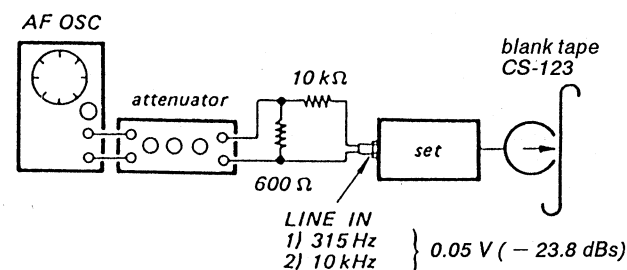
Record Bias Adjustment

Setting:

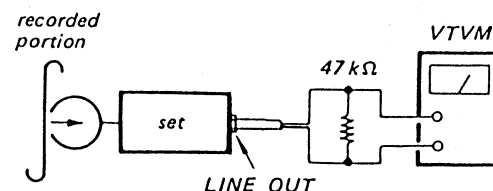
REC LEVEL control: standard record

Procedure:

1. Mode: record



2. Mode: playback



Confirm that the 10 kHz playback output is $0 \pm 0.5 \text{ dB}$ relative to the 315 Hz output. If necessary, adjust CT-301-1 (L-CH), CT301-2 (R-CH) and repeat the steps given above.

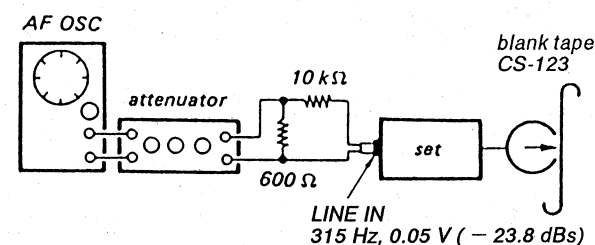
Record Level Adjustment

Setting:

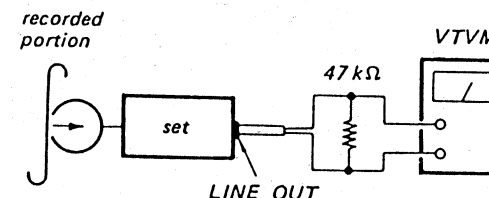
REC LEVEL control: standard record

Procedure:

1. Mode: record



2. Mode: playback

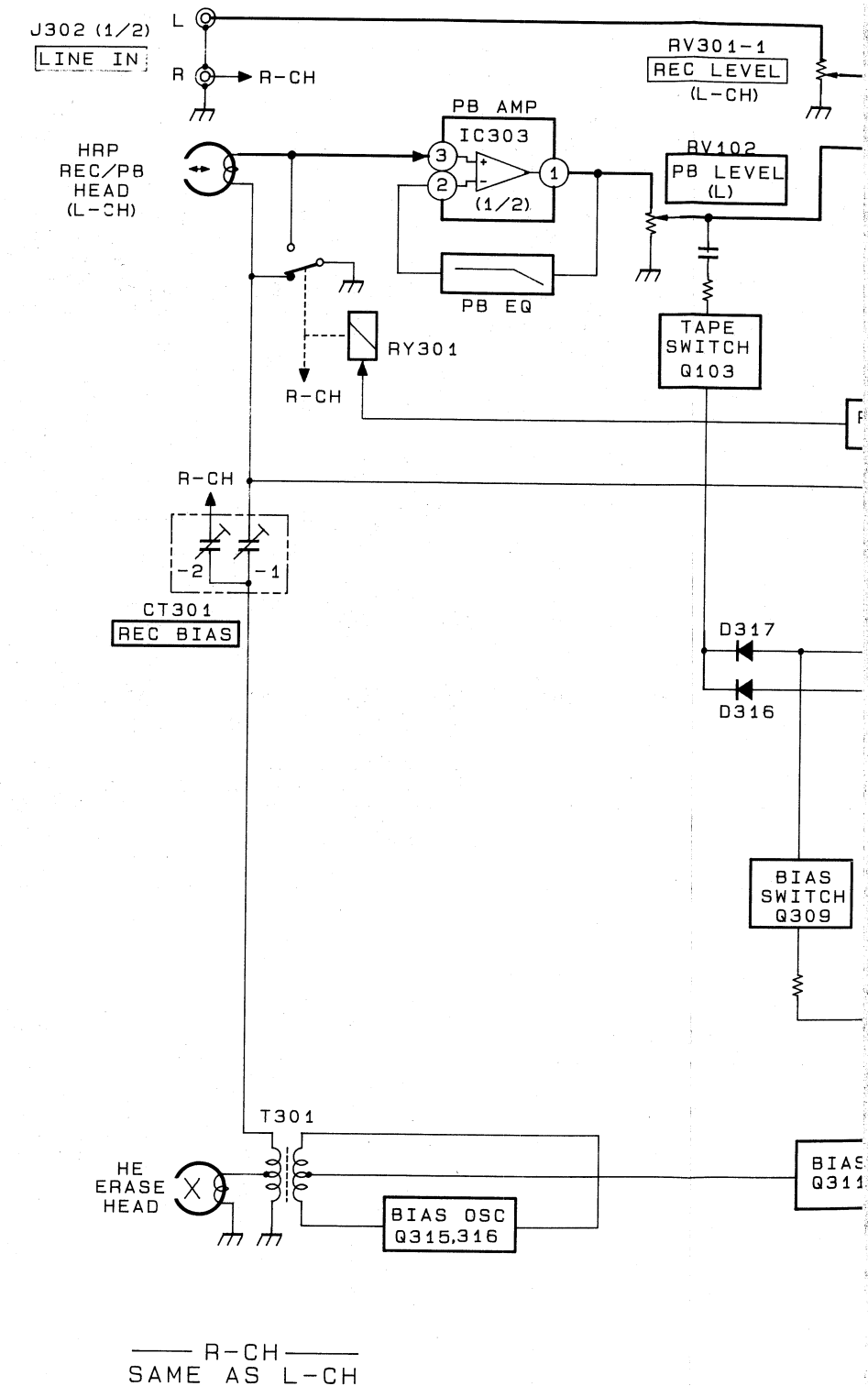
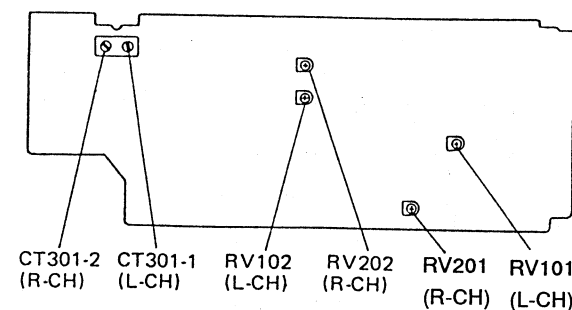


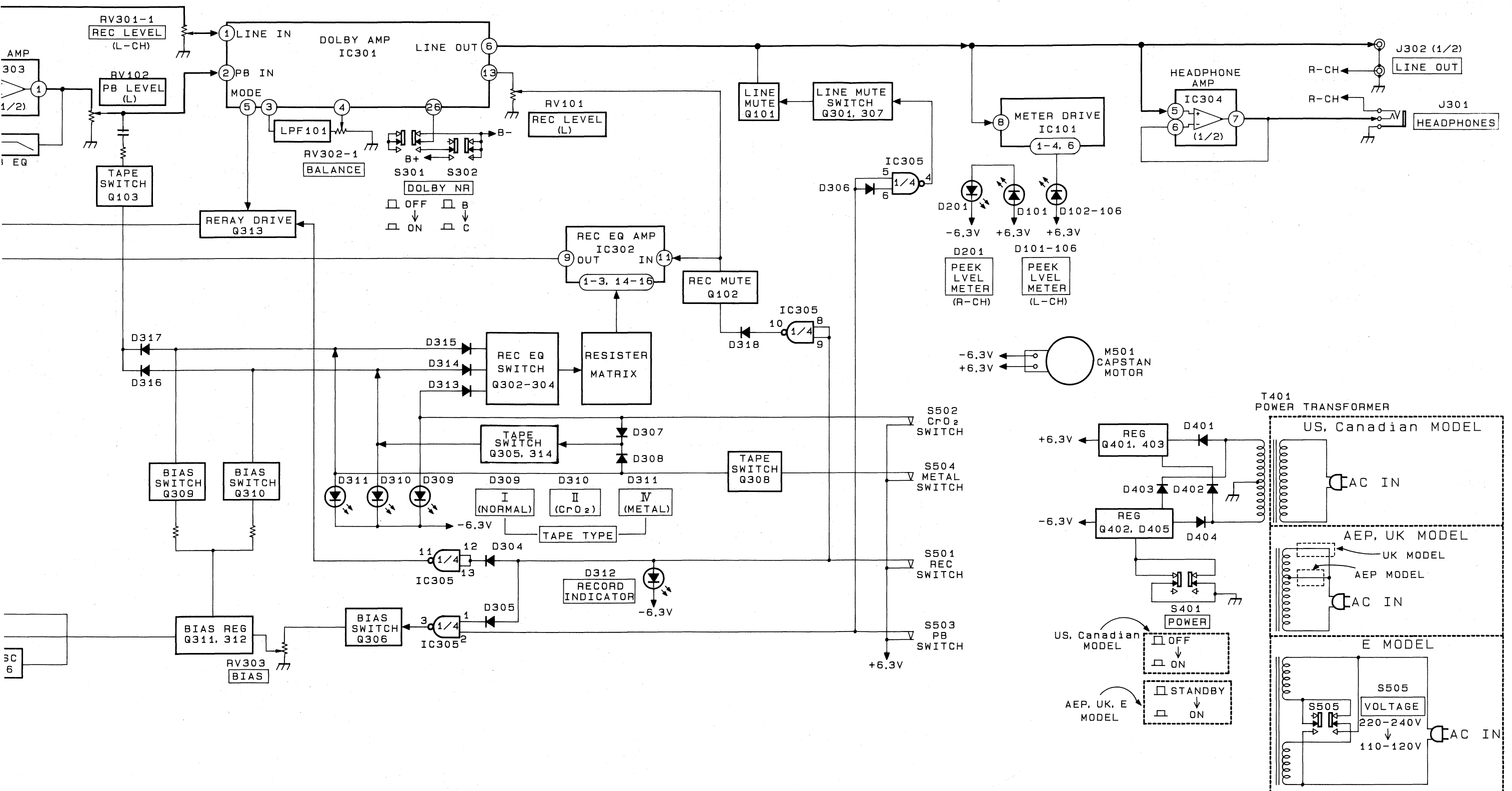
3. Playback the signal recorded in step 1. Confirm that the signal level is within the specification below. If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the step 1-3.

Specification:

LINE OUT level: $-23.8 \text{ dB} \pm 0.5 \text{ dB}$

Adjustment Location: audio board





• Semiconductor Lead Layouts

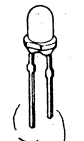
DTA114ES
DTA144ES
DTC114ES
DTC143TS
2SC2603-EF



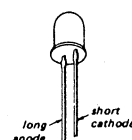
SEL1210S-C



SEL4214S-C



SEL4414E-C



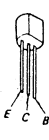
2SA1175-HFE



2SB1094-L
2SD2012



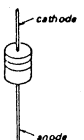
2SC945-P



10E2N



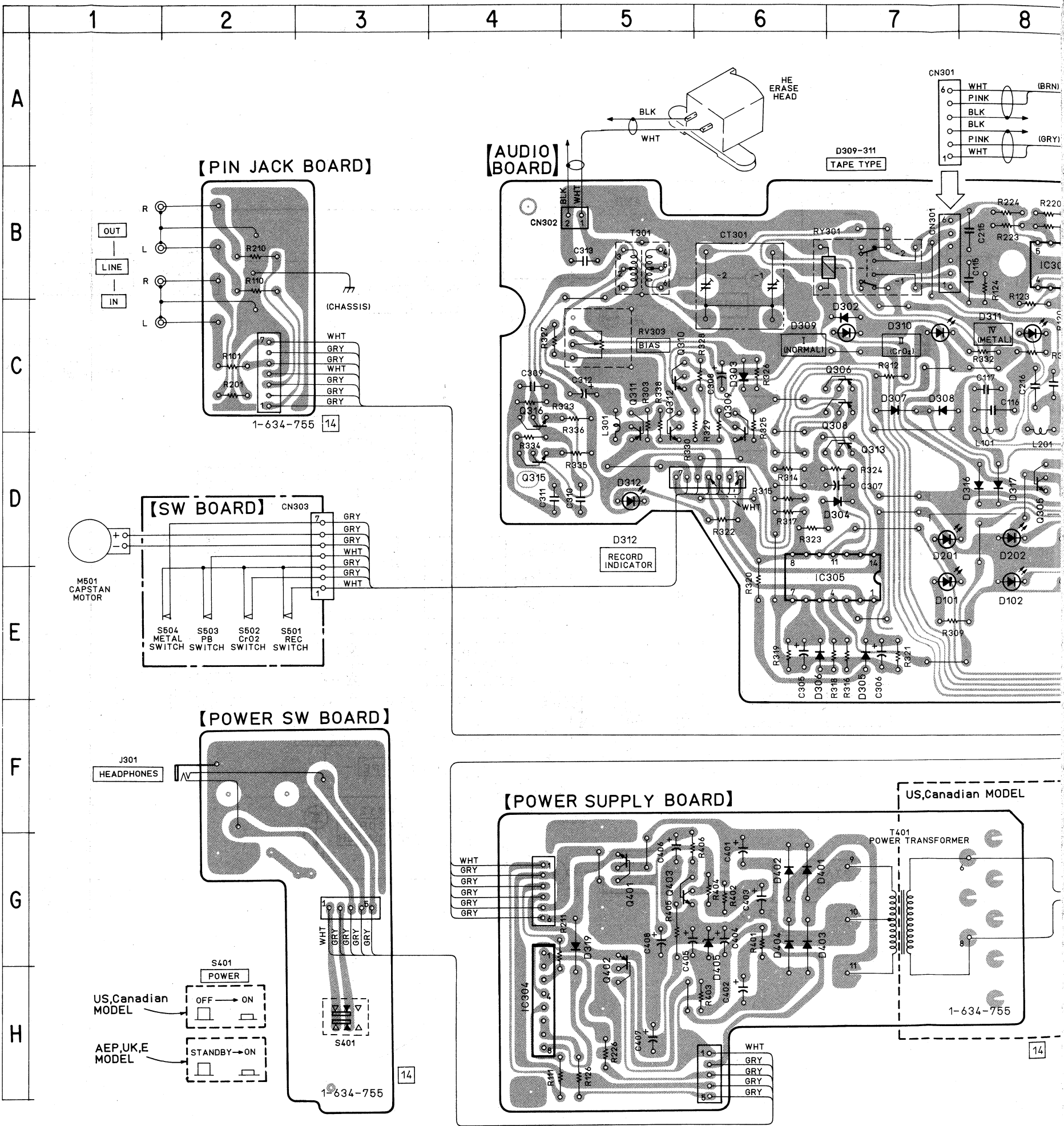
1SS120
UZL-7L3

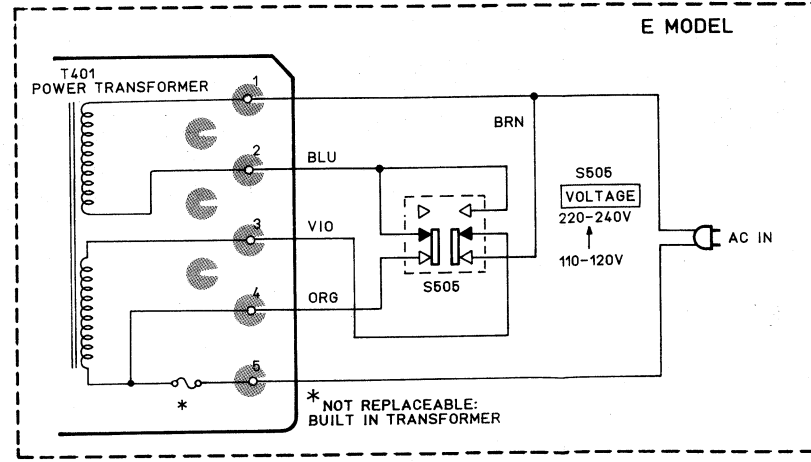
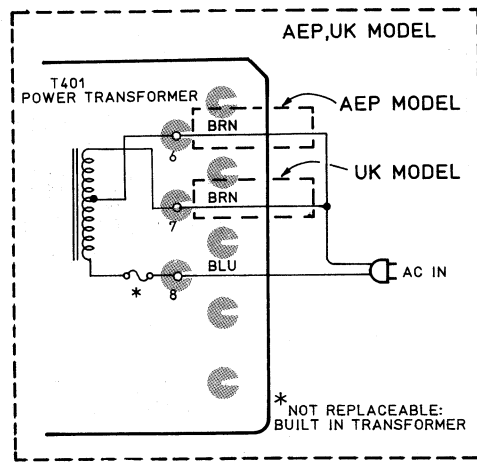
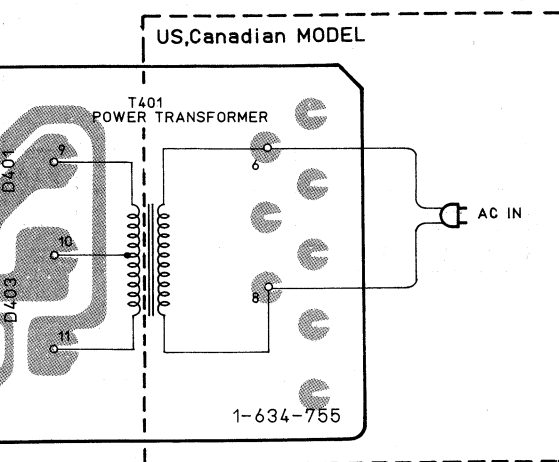
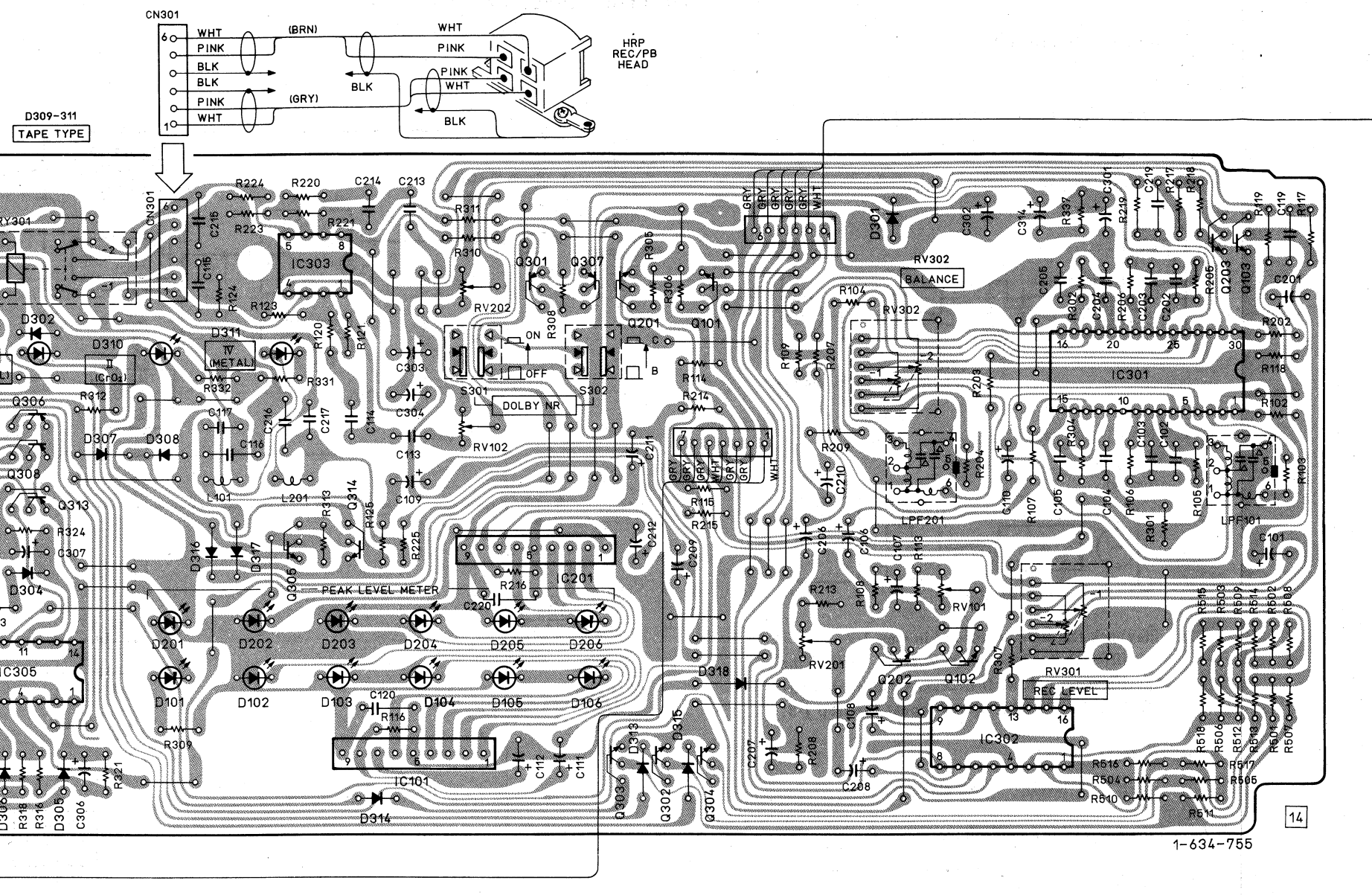


• Semiconductor Location

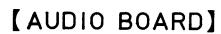
Ref. No.	Location
D101	E-7
D102	E-8
D103	E-8
D104	E-9
D105	E-9
D106	E-10
D201	D-7
D202	D-8
D203	D-8
D204	D-9
D205	D-9
D206	D-10
D301	B-12
D302	C-7
D303	C-6
D304	D-7
D305	E-7
D306	E-6
D307	C-7
D308	C-7
D309	C-7
D310	C-7
D311	C-8
D312	D-5
D313	E-10
D314	E-9
D315	E-10
D316	D-8
D317	D-8
D318	E-11
D319	G-5
D401	G-6
D402	G-6
D403	G-6
D404	G-6
D405	G-6
IC101	E-9
IC201	D-10
IC301	C-13
IC302	E-12
IC303	B-8
IC304	H-4
IC305	E-7
Q101	B-11
Q102	E-12
Q103	B-14
Q201	B-10
Q202	E-12
Q203	B-13
Q301	B-10
Q302	E-10
Q303	E-10
Q304	E-10
Q305	D-8
Q306	C-7
Q307	B-10
Q308	C-7
Q309	C-6
Q310	C-5
Q311	C-5
Q312	C-5
Q313	D-7
Q314	D-8
Q315	D-4
Q316	D-4
Q401	G-5
Q402	H-5
Q403	G-5

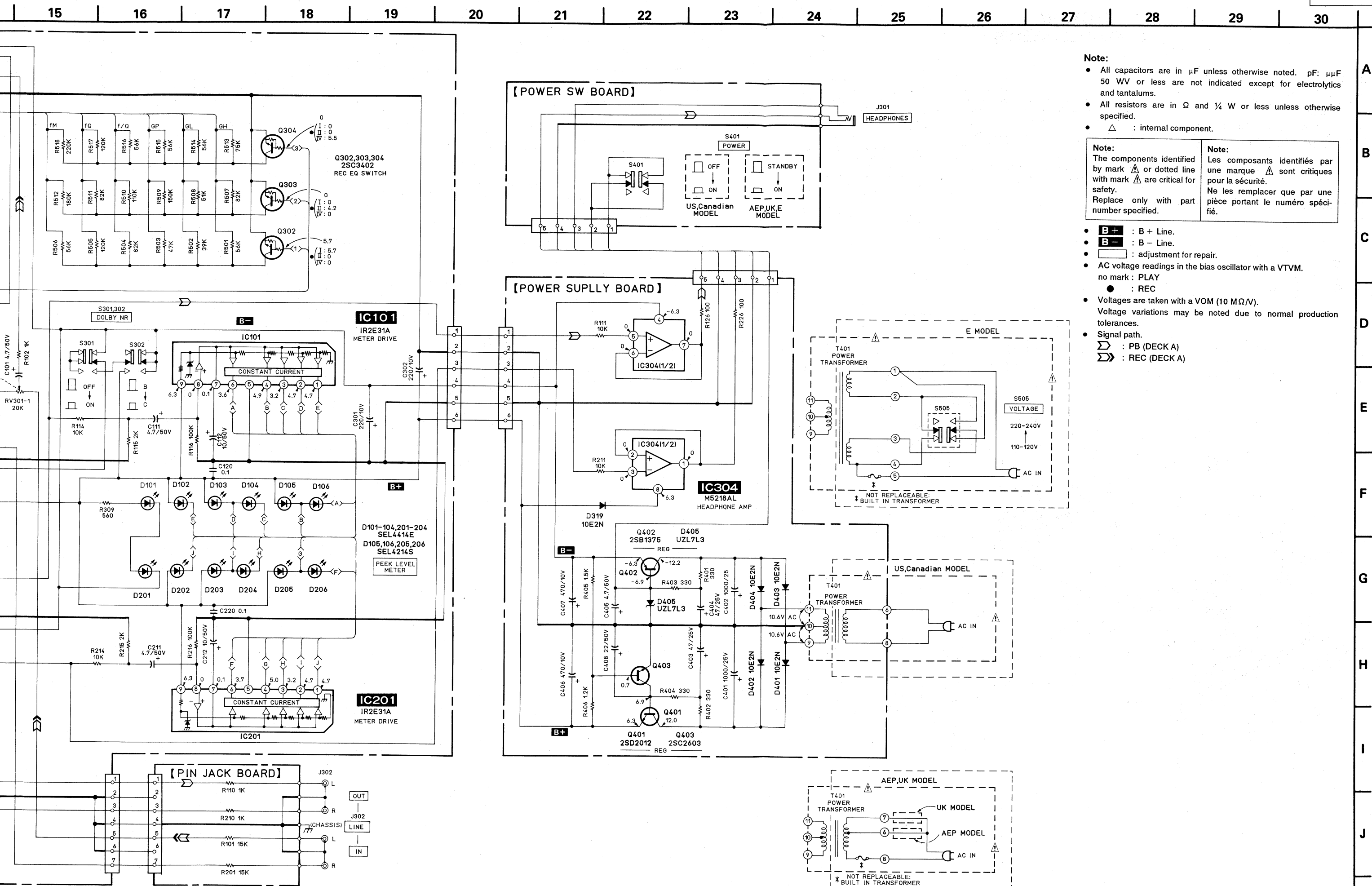
Note:
• ○ : parts extracted from the component side.
• □ : indicates side identified with part number.





1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----





SECTION 5

EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.



- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)


Parts Color	Cabinet's Color
Black	Black
White	White
Gray	Gray
Blue	Blue
Green	Green
Yellow	Yellow
Orange	Orange
Pink	Pink
Purple	Purple
Brown	Brown
Gold	Gold
Silver	Silver
Red	Red
Black	Black
White	White
Gray	Gray
Blue	Blue
Green	Green
Yellow	Yellow
Orange	Orange
Pink	Pink
Purple	Purple
Brown	Brown
Gold	Gold
Silver	Silver
Red	Red

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

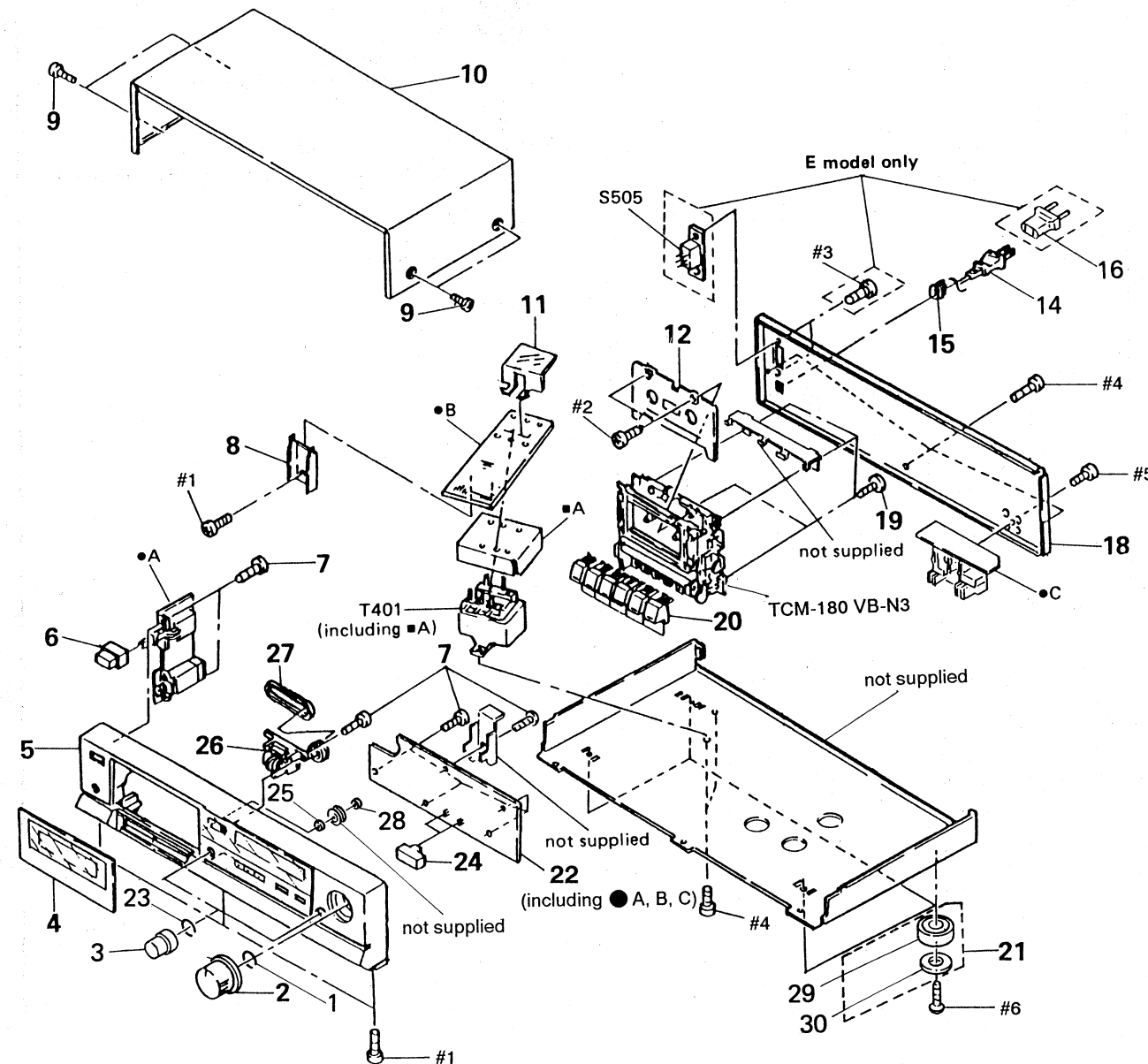
- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list is given in the last of this parts list.



The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.


Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET AND FRONT PANEL SECTION

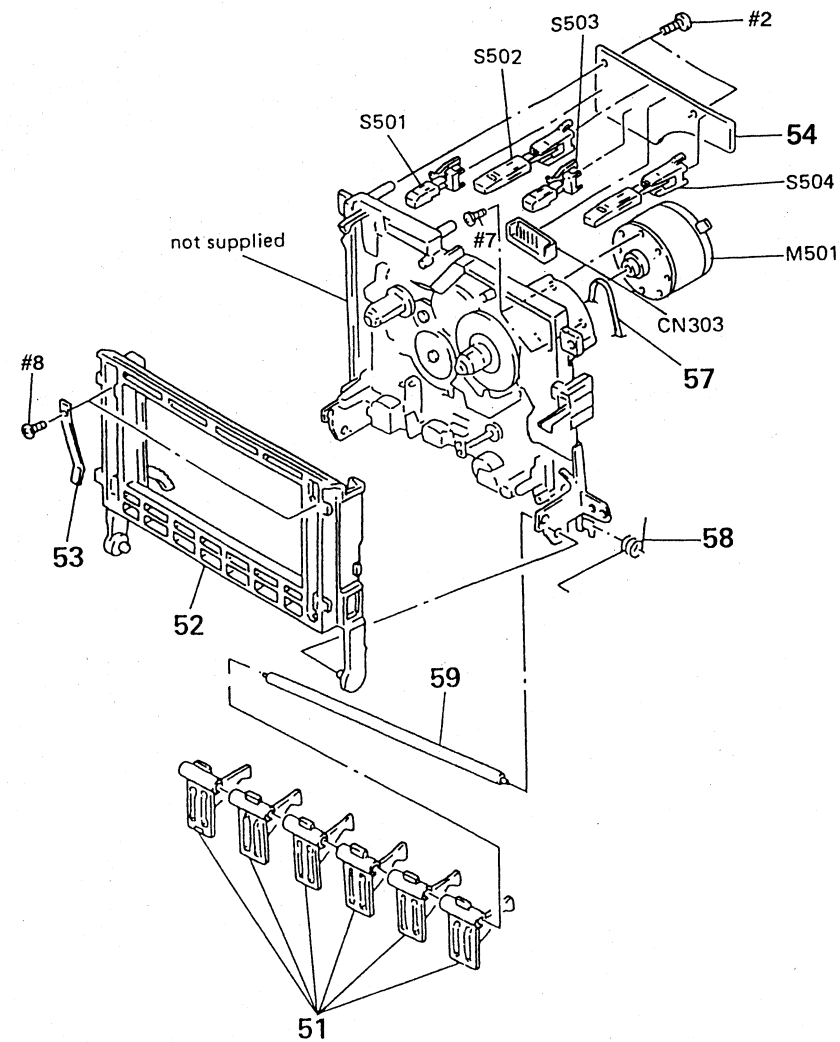


Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-350-426-01	SPRING		18	* 3-367-318-32	PANEL, BACK (UK) (MADE IN MALAYSIA)	
2	3-367-438-12	KNOB (REC)		18	* 3-367-318-42	PANEL, BACK (E) (MADE IN MALAYSIA)	
3	3-367-431-01	KNOB (BAL)		18	* 3-367-318-22	PANEL, BACK (AEP) (MADE IN MALAYSIA)	
4	X-3362-657-1	LID ASSY, CASSETTE		18	* 3-367-318-01	PANEL, BACK (US, Canadian)	(MADE IN MALAYSIA)
5	A-2003-854-A	PANEL ASSY, FRONT (AEP, UK, E)		18	* 3-366-413-01	PANEL, BACK (US) (MADE IN JAPAN)	
5	X-3362-658-1	PANEL ASSY, FRONT (US, Canadian)		19	4-928-635-21	SCREW, +BV (2.6X10) TAPPING	
6	4-917-460-01	KNOB, POWER (MADE IN MALAYSIA)		20	3-366-411-01	BUTTON (BLOCK)	
6	3-354-912-01	KNOB, POWER (MADE IN JAPAN)		21	X-4885-950-1	FOOT ASSY (US) (MADE IN JAPAN)	
7	4-928-635-01	SCREW, +BV (2.6X8) TAPPING		22	* A-2006-547-A	AUDIO BOARD, COMPLETE	(MADE IN MALAYSIA)
8	* 3-309-144-21	HEAT SINK		22	* A-2006-427-A	AUDIO BOARD, COMPLETE	(MADE IN JAPAN) (INCLUDING A, B, C)
9	3-704-366-01	SCREW (CASE) (M3X8)		23	3-356-957-01	SPRING	
10	4-943-088-31	CASE (MADE IN MALAYSIA)		24	3-350-810-01	BUTTON	
10	3-332-578-42	CASE (MADE IN JAPAN)		25	3-701-437-11	WASHER	
11	* 3-327-872-01	COVER (TRANSFORMER)		26	1-548-596-61	COUNTER, TAPE (MIDDLE TYPE)	
12	X-3358-214-1	PLATE ASSY, ORNAMENTAL		27	3-527-150-XX	BELT, CAPSTAN	
14	△ 1-551-506-XX	CORD, POWER (US, Canadian) (MADE IN JAPAN)		28	3-558-708-11	WASHER, STOPPER	
14	△ 1-551-884-32	CORD, POWER (UK) (MADE IN MALAYSIA)		29	3-318-688-31	FOOT (F58175 S) (AEP, UK, E)	(MADE IN MALAYSIA)
14	△ 1-551-908-11	CORD, POWER (AEP) (MADE IN MALAYSIA)		29	3-318-688-51	FOOT (F58175 S) (US, Canadian)	(MADE IN MALAYSIA)
14	△ 1-551-188-XX	CORD, POWER (E) (MADE IN MALAYSIA)					
14	△ 1-551-628-12	CORD, POWER (US, Canadian)	(MADE IN MALAYSIA)				
15	* 3-703-571-11	BUSHING (S) (4516), CORD (US, Canadian, E)		30	4-923-836-11	CUSHION	
15	* 3-703-244-02	BUSHING (S) (4516), CORD (AEP, UK)		S505	△ 1-552-535-00	SWITCH, POWER & VOLTAGE CHANGE (E)	
16	△ 1-569-007-11	ADAPTOR CONNECTION 2P (E)		T401	△ 1-449-593-11	TRANSFORMER, POWER (US, Canadian)	
				T401	△ 1-449-388-11	TRANSFORMER, POWER (E)	
				T401	△ 1-450-442-21	TRANSFORMER, POWER (AEP, UK)	

Note:
The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

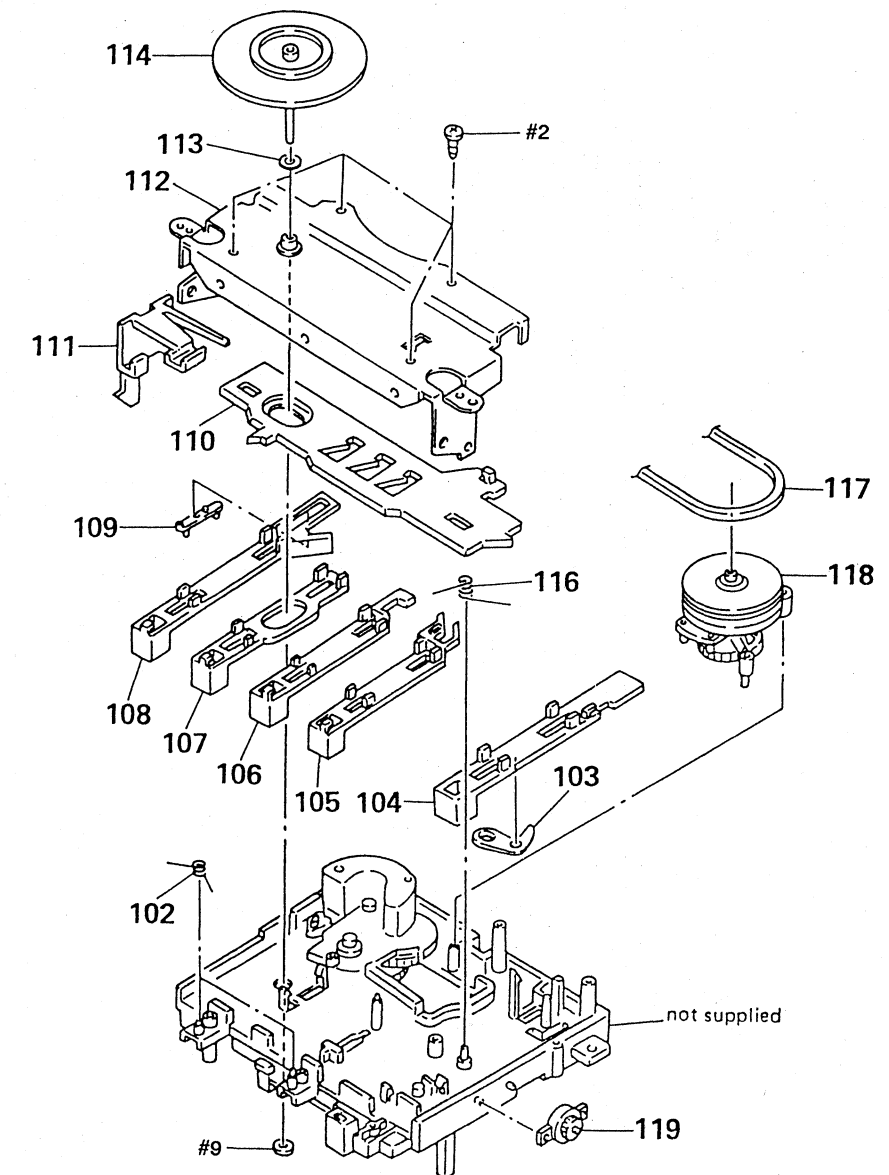
Note:
Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(2) MECHANISM SECTION-1
(TCM-180VB-N3)



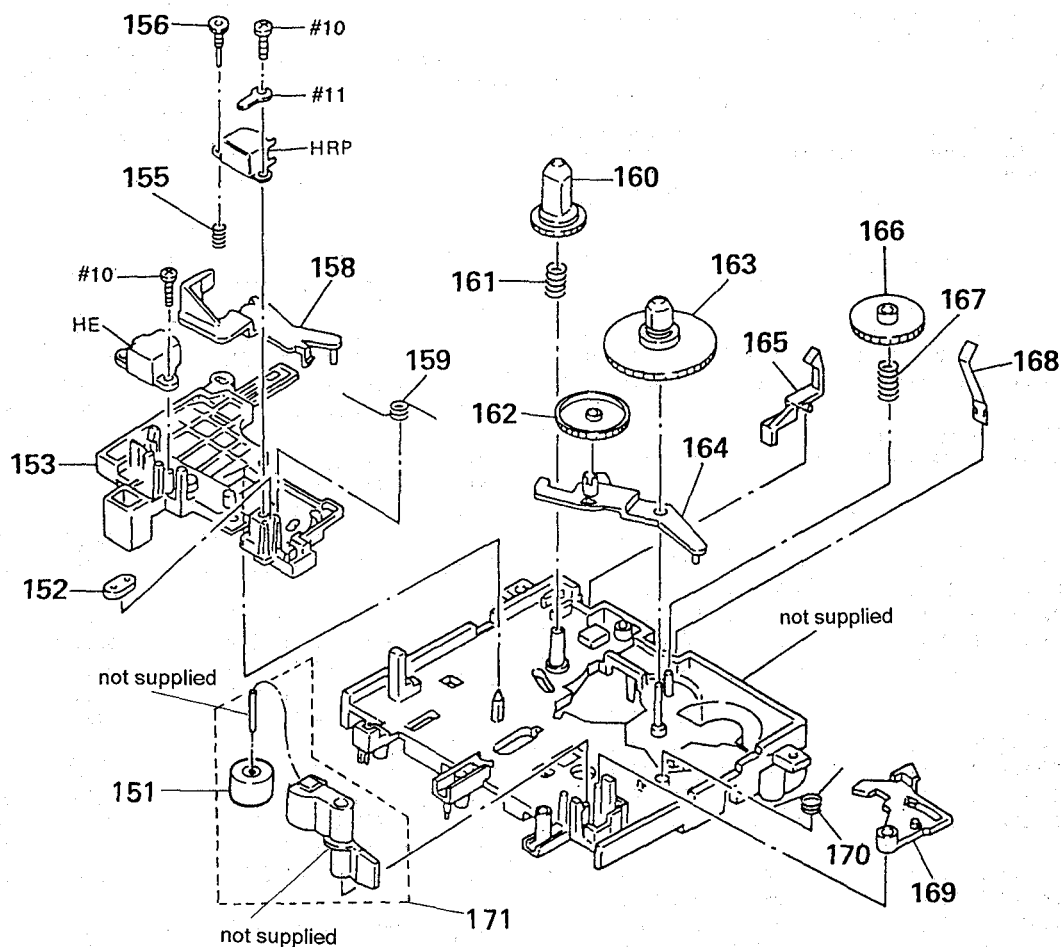
Ref.No.	Part No.	Description	Remark
51	3-358-271-01	LEVER (BUTTON BASE A)	
52	3-358-266-02	HOLDER, CASSETTE	
53	3-358-209-01	SPRING (CASSETTE HOLDER), LEAF	
54	* 1-635-160-11	PC BOARD, SWITCH	
57	3-358-230-01	BELT (A1)	
58	3-358-287-01	SPRING (LOADING A), TORSION	
59	3-358-242-01	SHAFT (BUTTON SHAFT)	
M501	X-3358-211-1	MOTOR (A) ASSY	

(3) MECHANISM SECTION-2
(TCM-180VB-N3)



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
102	3-358-232-01	SPRING (S-P F-R), TORSION		111	* 3-358-261-02	SLIDER (HOLDER LOCK)	
103	* 3-358-204-01	LEVER (REC SAFETY)		112	* X-3358-213-1	BRACKET (A) ASSY	
104	3-358-259-01	SLIDER (REC)		113	3-701-437-01	WASHER	
105	3-358-258-01	SLIDER (REW)		114	X-3358-205-1	FLYWHEEL ASSY	
106	3-358-257-01	SLIDER (FF)		116	3-358-233-01	SPRING (REC-LOCK), TORSION	
107	3-358-256-01	SLIDER (STOP/EJECT)		117	3-358-230-01	BELT (A1)	
108	3-358-260-01	SLIDER (PAUSE)		118	X-3358-202-1	LEVER (FR ARM) ASSY	
109	* 3-358-226-01	LEVER (PAUSE LEVER)		119	3-319-224-31	DAMPER, SMALL	
110	* 3-358-249-01	SLIDER (LOCK PLATE)					

(4) MECHANISM SECTION-3
(TCM-180VB-N3)



Ref. No.	Part No.	Description	Remark
151	3-578-143-11	PINCH ROLLER	
152	* 3-358-215-01	BUSHING (WIRE KIT RETAINER)	
153	3-358-265-01	SLIDER (HEAD PC BOARD A)	
155	3-358-234-01	SPRING (AZIMUTH), COMPRESSION	
156	3-358-288-01	SCREW (T), AZIMUTH	
158	* 3-358-251-01	LEVER (TENSION DETECTION ARM)	
159	3-358-228-01	SPRING, TORSION	
160	3-358-248-01	GEAR (SUPPLY REEL)	
161	3-358-208-01	SPRING (SUPPLY), COMPRESSION	
162	* 3-358-284-01	GEAR (TU GEAR)	

Ref. No.	Part No.	Description	Remark
163	X-3358-203-1	TABLE (T) ASSY, REEL	
164	* 3-358-252-01	LEVER (TU ARM)	
165	* 3-358-255-01	LEVER (GB LEVER)	
166	* 3-358-224-01	GEAR (FF GEAR)	
167	3-358-207-01	SPRING (FF GEAR), COMPRESSION	
168	3-358-227-01	SPRING, LEAF	
169	* 3-358-253-01	LEVER (SHUT-OFF LEVER)	
170	3-358-243-01	SPRING (TU-SHUT), TORSION	
171	X-3358-204-1	LEVER (PINCH LEVER) ASSY	
HE	1-543-673-11	HEAD, MAGNETIC (ERASE)	
HRP	1-543-319-11	HEAD, MAGNETIC (REC/PB)	

SECTION 6 ELECTRICAL PARTS LIST

AUDIO

PIN JACK

POWER SW

POWER SUPPLY

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• **SEMICONDUCTORS**

In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...

• **CAPACITORS**uF: μ F• **COILS**uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* A-2006-547-A AUDIO BOARD, COMPLETE (MADE IN MALAYSIA) (INCLUDING PIN JACK BOARD, POWER SW BOARD, POWER SUPPLY BOARD) *****				C207	1-124-902-00	ELECT	0.47uF 20% 50V
				C208	1-124-927-11	ELECT	4.7uF 20% 100V
				C209	1-124-927-11	ELECT	4.7uF 20% 100V
				C210	1-124-927-11	ELECT	4.7uF 20% 100V
				C211	1-124-927-11	ELECT	4.7uF 20% 100V
				C212	1-124-907-11	ELECT	10uF 20% 50V
				C213	1-124-611-00	ELECT	1uF 20% 50V
				C214	1-136-157-00	FILM	0.022uF 5% 50V
				C215	1-162-291-31	CERAMIC	560PF 10% 50V
				C216	1-162-284-31	CERAMIC	150PF 10% 50V
				C217	1-136-273-91	FILM	75PF 5% 630V
				C219	1-161-377-00	CERAMIC	0.0047uF 30% 16V
				C220	1-164-159-11	CERAMIC	0.1uF 50V
				C301	1-126-176-11	ELECT	220uF 20% 10V
				C302	1-126-176-11	ELECT	220uF 20% 10V
				C303	1-124-443-00	ELECT	100uF 20% 10V
				C304	1-124-443-00	ELECT	100uF 20% 10V
				C305	1-126-233-11	ELECT	22uF 20% 50V
				C306	1-124-927-11	ELECT	4.7uF 20% 100V
				C307	1-124-927-11	ELECT	4.7uF 20% 100V
				C308	1-124-902-00	ELECT	0.47uF 20% 50V
				C309	1-130-478-00	MYLAR	0.0039uF 5% 50V
				C310	1-130-478-00	MYLAR	0.0039uF 5% 50V
				C311	1-130-481-00	MYLAR	0.0068uF 5% 50V
				C312	1-124-927-11	ELECT	4.7uF 20% 100V
				C313	1-136-601-11	FILM	0.01uF 5% 630V
				C314	1-126-176-11	ELECT	220uF 20% 10V
				C401	1-124-557-11	ELECT	1000uF 20% 25V
				C402	1-124-557-11	ELECT	1000uF 20% 25V
				C403	1-124-477-11	ELECT	47uF 20% 25V
				C404	1-124-477-11	ELECT	47uF 20% 25V
				C405	1-124-927-11	ELECT	4.7uF 20% 100V
				C406	1-124-472-11	ELECT	470uF 20% 10V
				C407	1-124-472-11	ELECT	470uF 20% 10V
				C408	1-126-233-11	ELECT	22uF 20% 50V
* 3-309-144-21 HEAT SINK 7-682-547-04 SCREW #8VTT 3X6 (S)							
< CAPACITOR >							
C101	1-124-927-11	ELECT	4.7uF 20% 100V				
C102	1-130-475-00	MYLAR	0.0022uF 5% 50V				
C103	1-130-475-00	MYLAR	0.0022uF 5% 50V				
C104	1-136-174-00	FILM	0.56uF 5% 50V				
C105	1-136-171-00	FILM	0.33uF 5% 50V				
C106	1-124-927-11	ELECT	4.7uF 20% 100V				
C107	1-124-902-00	ELECT	0.47uF 20% 50V				
C108	1-124-927-11	ELECT	4.7uF 20% 100V				
C109	1-124-927-11	ELECT	4.7uF 20% 100V				
C110	1-124-927-11	ELECT	4.7uF 20% 100V				
C111	1-124-927-11	ELECT	4.7uF 20% 100V				
C112	1-124-907-11	ELECT	10uF 20% 50V				
C113	1-124-611-00	ELECT	1uF 20% 50V				
C114	1-136-157-00	FILM	0.022uF 5% 50V				
C115	1-162-291-31	CERAMIC	560PF 10% 50V				
C116	1-162-284-31	CERAMIC	150PF 10% 50V				
C117	1-136-273-91	FILM	75PF 5% 630V				
C119	1-161-377-00	CERAMIC	0.0047uF 30% 16V				
C120	1-164-159-11	CERAMIC	0.1uF 50V				
C201	1-124-927-11	ELECT	4.7uF 20% 100V				
C202	1-130-475-00	MYLAR	0.0022uF 5% 50V				
C203	1-130-475-00	MYLAR	0.0022uF 5% 50V				
C204	1-136-174-00	FILM	0.56uF 5% 50V				
C205	1-136-171-00	FILM	0.33uF 5% 50V				
C206	1-124-927-11	ELECT	4.7uF 20% 100V				

AUDIO

PIN JACK

POWER SW

POWER SUPPLY

Ref.No.	Part No.	Description	Remark
		< CONNECTOR >	
CN301	* 1-564-509-11	PLUG, CONNECTOR 6P	
CN302	* 1-564-505-11	PLUG, CONNECTOR 2P	
		< TRIMMER >	
CT301	1-141-225-00	CAP. TUNING, TRIMAR	
		< DIODE >	
D101	8-719-304-37	DIODE SEL4414E-C	
D102	8-719-304-37	DIODE SEL4414E-C	
D103	8-719-304-37	DIODE SEL4414E-C	
D104	8-719-304-37	DIODE SEL4414E-C	
D105	8-719-304-32	DIODE SEL4214S-C	
D106	8-719-304-32	DIODE SEL4214S-C	
D201	8-719-304-37	DIODE SEL4414E-C	
D202	8-719-304-37	DIODE SEL4414E-C	
D203	8-719-304-37	DIODE SEL4414E-C	
D204	8-719-304-37	DIODE SEL4414E-C	
D205	8-719-304-32	DIODE SEL4214S-C	
D206	8-719-304-32	DIODE SEL4214S-C	
D301	8-719-912-20	DIODE 1SS120	
D302	8-719-912-20	DIODE 1SS120	
D303	8-719-912-20	DIODE 1SS120	
D304	8-719-912-20	DIODE 1SS120	
D305	8-719-912-20	DIODE 1SS120	
D306	8-719-912-20	DIODE 1SS120	
D307	8-719-912-20	DIODE 1SS120	
D308	8-719-912-20	DIODE 1SS120	
D309	8-719-304-37	DIODE SEL4414E-C	
D310	8-719-304-37	DIODE SEL4414E-C	
D311	8-719-304-37	DIODE SEL4414E-C	
D312	8-719-302-46	DIODE SEL1210S-C-2	
D313	8-719-912-20	DIODE 1SS120	
D314	8-719-912-20	DIODE 1SS120	
D315	8-719-912-20	DIODE 1SS120	
D316	8-719-912-20	DIODE 1SS120	
D317	8-719-912-20	DIODE 1SS120	
D318	8-719-912-20	DIODE 1SS120	
D319	8-719-200-77	DIODE 10E2N	
D401	8-719-200-77	DIODE 10E2N	
D402	8-719-200-77	DIODE 10E2N	
D403	8-719-200-77	DIODE 10E2N	
D404	8-719-200-77	DIODE 10E2N	
D405	8-719-000-81	DIODE UZL-7L3	

Ref.No.	Part No.	Description	Remark
		< IC >	
IC101	8-759-917-42	IC IR2E31A	
IC201	8-759-917-42	IC IR2E31A	
IC301	8-752-035-94	IC CXA1331S	
IC302	8-752-038-02	IC CXA1198AP	
IC303	8-759-111-44	IC uPC4570C-1	
IC304	8-759-634-50	IC M5218AL	
IC305	8-759-140-11	IC uPD4011BC	
		< JACK >	
J301	1-507-981-11	JACK (LARGE TYPE) (HEADPHONES)	
J302	1-565-259-11	JACK, PIN 4P (LINE IN/OUT)	
		< COIL >	
L101	1-410-780-11	INDUCTOR 27mH	
L201	1-410-780-11	INDUCTOR 27mH	
L301	1-410-976-11	INDUCTOR 68uH	
		< FILTER >	
LPF101	1-236-087-11	FILTER, LOW PASS	
LPF201	1-236-087-11	FILTER, LOW PASS	
		< TRANSISTOR >	
Q101	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q102	8-729-900-74	TRANSISTOR DTC143TS	
Q103	8-729-900-80	TRANSISTOR DTC114ES	
Q201	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q202	8-729-900-74	TRANSISTOR DTC143TS	
Q203	8-729-900-80	TRANSISTOR DTC114ES	
Q301	8-729-900-65	TRANSISTOR DTA144ES	
Q302	8-729-900-80	TRANSISTOR DTC114ES	
Q303	8-729-900-80	TRANSISTOR DTC114ES	
Q304	8-729-900-80	TRANSISTOR DTC114ES	
Q305	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q306	8-729-900-61	TRANSISTOR DTA114ES	
Q307	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q308	8-729-900-61	TRANSISTOR DTA114ES	
Q309	8-729-900-80	TRANSISTOR DTC114ES	
Q310	8-729-900-80	TRANSISTOR DTC114ES	
Q311	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q312	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q313	8-729-900-61	TRANSISTOR DTA114ES	
Q314	8-729-900-80	TRANSISTOR DTC114ES	
Q315	8-729-194-57	TRANSISTOR 2SC945-P	
Q316	8-729-194-57	TRANSISTOR 2SC945-P	
Q401	8-729-209-15	TRANSISTOR 2SD2012	
Q402	8-729-111-67	TRANSISTOR 2SB1094-L	
Q403	8-729-620-05	TRANSISTOR 2SC2603-EF	

AUDIO

PIN JACK

POWER SW

POWER SUPPLY

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R101	1-249-431-11	CARBON	15K	5%	1/4W
R102	1-249-417-11	CARBON	1K	5%	1/4W
R103	1-249-423-11	CARBON	3.3K	5%	1/4W
R104	1-249-423-11	CARBON	3.3K	5%	1/4W
R105	1-247-864-11	CARBON	24K	5%	1/4W
R106	1-249-414-11	CARBON	560	5%	1/4W
R107	1-249-431-11	CARBON	15K	5%	1/4W
R108	1-249-425-11	CARBON	4.7K	5%	1/4W
R109	1-249-421-11	CARBON	2.2K	5%	1/4W
R110	1-249-417-11	CARBON	1K	5%	1/4W
R111	1-249-429-11	CARBON	10K	5%	1/4W
R113	1-249-423-11	CARBON	3.3K	5%	1/4W
R114	1-249-429-11	CARBON	10K	5%	1/4W
R115	1-247-838-00	CARBON	2K	5%	1/4W
R116	1-249-441-11	CARBON	100K	5%	1/4W
R117	1-249-431-11	CARBON	15K	5%	1/4W
R118	1-247-887-00	CARBON	220K	5%	1/4W
R119	1-249-430-11	CARBON	12K	5%	1/4W
R120	1-249-426-11	CARBON	5.6K	5%	1/4W
R121	1-247-882-11	CARBON	130K	5%	1/4W
R123	1-249-404-00	CARBON	82	5%	1/4W
R124	1-247-889-00	CARBON	270K	5%	1/4W
R125	1-249-430-11	CARBON	12K	5%	1/4W
R126	1-249-405-11	CARBON	100	5%	1/4W
R201	1-249-431-11	CARBON	15K	5%	1/4W
R202	1-249-417-11	CARBON	1K	5%	1/4W
R203	1-249-423-11	CARBON	3.3K	5%	1/4W
R204	1-249-423-11	CARBON	3.3K	5%	1/4W
R205	1-247-864-11	CARBON	24K	5%	1/4W
R206	1-249-414-11	CARBON	560	5%	1/4W
R207	1-249-431-11	CARBON	15K	5%	1/4W
R208	1-249-425-11	CARBON	4.7K	5%	1/4W
R209	1-249-421-11	CARBON	2.2K	5%	1/4W
R210	1-249-417-11	CARBON	1K	5%	1/4W
R211	1-249-429-11	CARBON	10K	5%	1/4W
R213	1-249-423-11	CARBON	3.3K	5%	1/4W
R214	1-249-429-11	CARBON	10K	5%	1/4W
R215	1-247-838-00	CARBON	2K	5%	1/4W
R216	1-249-441-11	CARBON	100K	5%	1/4W
R217	1-249-431-11	CARBON	15K	5%	1/4W
R218	1-247-887-00	CARBON	220K	5%	1/4W
R219	1-249-430-11	CARBON	12K	5%	1/4W
R220	1-249-426-11	CARBON	5.6K	5%	1/4W
R221	1-247-882-11	CARBON	130K	5%	1/4W
R223	1-249-404-00	CARBON	82	5%	1/4W

Ref. No.	Part No.	Description	Remark		
R224	1-247-889-00	CARBON	270K	5%	1/4W
R225	1-249-430-11	CARBON	12K	5%	1/4W
R226	1-249-405-11	CARBON	100	5%	1/4W
R301	1-249-437-11	CARBON	47K	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-249-429-11	CARBON	10K	5%	1/4W
R304	1-215-455-00	METAL	27K	1%	1/6W
R305	1-249-421-11	CARBON	2.2K	5%	1/4W
R306	1-249-421-11	CARBON	2.2K	5%	1/4W
R307	1-247-864-11	CARBON	24K	5%	1/4W
R308	1-249-429-11	CARBON	10K	5%	1/4W
R309	1-249-414-11	CARBON	560	5%	1/4W
R310	1-249-409-11	CARBON	220	5%	1/4W
R311	1-249-409-11	CARBON	220	5%	1/4W
R312	1-249-415-11	CARBON	680	5%	1/4W
R313	1-249-429-11	CARBON	10K	5%	1/4W
R314	1-249-421-11	CARBON	2.2K	5%	1/4W
R315	1-249-421-11	CARBON	2.2K	5%	1/4W
R316	1-249-429-11	CARBON	10K	5%	1/4W
R317	1-249-429-11	CARBON	10K	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-433-11	CARBON	22K	5%	1/4W
R320	1-249-429-11	CARBON	10K	5%	1/4W
R321	1-249-437-11	CARBON	47K	5%	1/4W
R322	1-249-420-11	CARBON	1.8K	5%	1/4W
R323	1-249-421-11	CARBON	2.2K	5%	1/4W
R324	1-249-433-11	CARBON	22K	5%	1/4W
R325	1-249-417-11	CARBON	1K	5%	1/4W
R326	1-249-434-11	CARBON	27K	5%	1/4W
R327	1-249-430-11	CARBON	12K	5%	1/4W
R328	1-249-423-11	CARBON	3.3K	5%	1/4W
R329	1-247-838-00	CARBON	2K	5%	1/4W
R330	1-247-852-11	CARBON	7.5K	5%	1/4W
R331	1-249-415-11	CARBON	680	5%	1/4W
R332	1-249-415-11	CARBON	680	5%	1/4W
R333	1-249-432-11	CARBON	18K	5%	1/4W
R334	1-249-432-11	CARBON	18K	5%	1/4W
R335	1-249-387-11	CARBON	3.3	5%	1/4W
R336	1-249-387-11	CARBON	3.3	5%	1/4W
R337	1-249-409-11	CARBON	220	5%	1/4W
R338	1-249-423-11	CARBON	3.3K	5%	1/4W
R401	1-249-411-11	CARBON	330	5%	1/4W
R402	1-249-411-11	CARBON	330	5%	1/4W
R403	1-249-411-11	CARBON	330	5%	1/4W
R404	1-249-411-11	CARBON	330	5%	1/4W
R405	1-249-419-11	CARBON	1.5K	5%	1/4W
R406	1-249-418-11	CARBON	1.2K	5%	1/4W
R501	1-249-438-11	CARBON	56K	5%	1/4W
R502	1-249-436-11	CARBON	39K	5%	1/4W

AUDIO

PIN JACK

POWER SW

POWER SUPPLY

SWITCH

Ref. No.	Part No.	Description	Remark
R503	1-249-437-11	CARBON 47K 5% 1/4W	
R504	1-249-440-11	CARBON 82K 5% 1/4W	
R505	1-247-881-00	CARBON 120K 5% 1/4W	
R506	1-249-438-11	CARBON 56K 5% 1/4W	
R507	1-249-440-11	CARBON 82K 5% 1/4W	
R508	1-247-872-11	CARBON 51K 5% 1/4W	
R509	1-247-883-00	CARBON 150K 5% 1/4W	
R510	1-247-880-11	CARBON 110K 5% 1/4W	
R511	1-249-440-11	CARBON 82K 5% 1/4W	
R512	1-247-885-00	CARBON 180K 5% 1/4W	
R513	1-247-876-11	CARBON 75K 5% 1/4W	
< VARIABLE RESISTOR >			
RV101	1-228-994-00	RES. ADJ. METAL10K (REC LEVEL)	
RV102	1-228-994-00	RES. ADJ. METAL10K (PB LEVEL)	
RV201	1-228-994-00	RES. ADJ. METAL10K (REC LEVEL)	
RV202	1-228-994-00	RES. ADJ. METAL10K (PB LEVEL)	
RV301	1-241-495-11	RES. VAR. CARBON 20K/20K (REC LEVEL)	
RV302	1-241-494-11	RES. VAR. CARBON 5K/5K (BALANCE)	
RV303	1-241-498-11	RES. VAR. CARBON 5K (BIAS)	
< RELAY >			
RY301	1-515-726-11	RELAY	
< SWITCH >			
S301	1-571-292-11	SWITCH, PUSH (1 KEY) (DOLBY NR)	
S302	1-571-292-11	SWITCH, PUSH (1 KEY) (DOLBY NR)	
S401	1-570-393-21	SWITCH, PUSH (1 KEY) (POWER)	
< TRANSFORMER >			
T301	1-433-365-11	TRANSFORMER, BIAS OSCILLATION	

* 1-635-160-11 SWITCH, BOARD			

< CONNECTOR >			
CN303	1-564-500-11	PIN, CONNECTOR 7P	

Ref. No.	Part No.	Description	Remark
< SWITCH >			
S501	1-571-736-11	SWITCH, LEAF	
S502	1-572-335-11	SWITCH, LEAF	
S503	1-571-736-11	SWITCH, LEAF	
S504	1-572-335-11	SWITCH, LEAF	

MISCELLANEOUS			

14	△	1-551-188-XX CORD, POWER (E) (MADE IN MALAYSIA)	
14	△	1-551-506-XX CORD, POWER (US, Canadian) (MADE IN JAPAN)	
14	△	1-551-628-12 CORD, POWER (US, Canadian)	
(MADE IN MALAYSIA)			
14	△	1-551-884-32 CORD, POWER (UK) (MADE IN MALAYSIA)	
14	△	1-551-908-11 CORD, POWER (AEP) (MADE IN MALAYSIA)	
16	△	1-569-007-11 ADAPTOR CONNECTION 2P (E)	
26		1-548-596-61 COUNTER, TAPE (MIDDLE TYPE)	
HE		1-543-673-11 HEAD, MAGNETIC (ERASE)	
HRP		1-543-319-11 HEAD, MAGNETIC (REC/PB)	
M501		X-3358-211-1 MOTOR (A) ASSY	
S505	△	1-552-535-00 SWITCH, POWER & VOLTAGE CHANGE (E)	
T401	△	1-449-388-11 TRANSFORMER, POWER (E)	
T401	△	1-449-593-11 TRANSFORMER, POWER (US, Canadian)	
T401	△	1-450-442-21 TRANSFORMER, POWER (AEP, UK)	

ACCESSORY & PACKING MATERIAL			

1-559-533-11 CORD, CONNECTION			
* 3-349-037-01 CUSHION (MADE IN JAPAN)			
* 3-364-606-01 CUSHION (MADE IN MALAYSIA)			
* 3-354-979-21 INDIVIDUAL CARTON (MADE IN JAPAN)			
* 3-364-604-11 INDIVIDUAL CARTON (MADE IN MALAYSIA)			
3-703-450-01 INSTRUCTION (US)			
3-752-875-11 MANUAL, INSTRUCTION (ENGLISH, F, D, RC)			
(AEP, Canadian, E) (MADE IN MALAYSIA)			
3-752-875-21 MANUAL, INSTRUCTION (ENGLISH) (US, UK)			
(MADE IN JAPAN)			
3-752-875-41 MANUAL, INSTRUCTION (D, NL, S, I) (AEP)			
(MADE IN MALAYSIA)			
3-752-875-61 MANUAL, INSTRUCTION (ENGLISH) (US, UK)			
(MADE IN MALAYSIA)			

Note:

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note:

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
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HARDWARE LIST

# 1	7-682-547-04	SCREW +BVT 3X6 (S)	
# 2	7-685-133-19	SCREW +P 2.6X6 TYPE2	
# 3	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S (E)	
# 4	7-685-645-79	SCREW +BVT 3X6 TYPE2 N-S	
# 5	7-621-849-00	SCREW (BV/RING)	
# 6	7-685-646-79	SCREW +BVT 3X8 TYPE2 N-S	
# 7	7-621-775-20	SCREW +B 2.6X5	
# 8	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
# 9	7-623-921-01	RING, RETAINING, CAPSTAN	
#11	7-623-505-01	LUG, 2	